

Health Clinics in the Helembu, Nepal

By **GEORGE MOORE, M.D., M.P.H.**

IN the snow-capped Helembu district near the Tibetan border lies Malemchigāon, a Sherpa village in Nepal, at an altitude of 8,000 feet and some 34 miles north of Kathmandu. Tarke Ghyāng, another Sherpa village, lies at an elevation of 9,000 feet on the east side of the mountain stream known as Malemchi Khola. This stream is the source of two other streams, the Indravati Khola and Sun Kosi. Tarke Ghyāng is within sight of Malemchigāon, 4 miles distant. These villages are accessible only by foot over precarious mountain trails.

Both villages—nesting in the heart of the formidable Himalayas—were selected in mid-May 1953 by the Foreign Operations Administration Mission to Nepal as representative

Nepalese communities for a study of medical conditions in a high altitude area.

No planned medical survey had ever before been made of the “hill tribes,” as the people living in the snow caps—the Sherpas, Piu-thanis, Jumlis, and other Bhotias—are all called. Current and proposed FOA health programs in Nepal had hitherto been limited to insectborne disease control in the Terai, the great plains at the foot of the Himalayas, and to the health programs at Kathmandu and Pokhara, both of which are in valleys less than 5,000 feet in altitude. In 1949, a member of an expedition had made some observations on medical and health conditions he saw in the Kali Gandak and Pokhara areas.

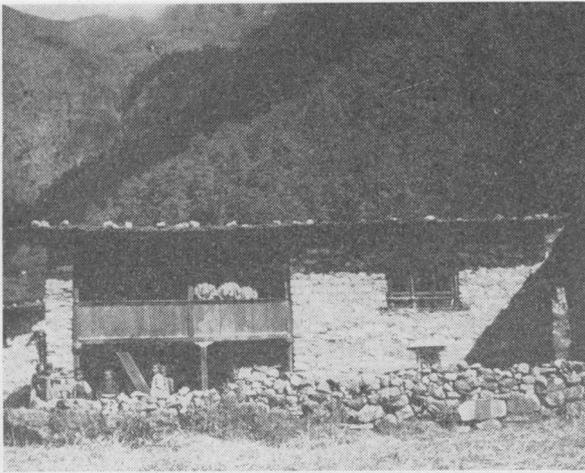
Most of Nepal is marked by high mountains, deep ravines, and almost impassable terrain. More than two-thirds of its population live in these mountainous, isolated, and inaccessible regions. There are probably not 7 million people in this small independent kingdom. So far as is known, no accurate count has ever been made, but a rough census, which may include the Helembu district, is now in progress.

Little of this area has been adequately mapped. Maps of Nepal now in general use are based apparently on 1924 surveys. That they are notorious for their errors has been quite well demonstrated by Maurice Herzog, the author of *Annapurna*.

Although the term “hill area” includes all areas in Nepal above the low Siwalik range, it is probably a little too loose a term to describe the home of the Sherpas in the Helembu. The hill area is roughly divided according to altitudes. Living in the valleys and in areas of less than 5,000 feet are the agricultural folk, the Chetriyas, Newaris, and Rais. The sheep-raisers, such as

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Formerly venereal disease control officer for the Fort Bragg (N. C.) military area and earlier for Wayne County, Mich. (the Detroit metropolitan area), Dr. Moore is a graduate of Temple University Medical School. He received his master's degree in public health at the University of Michigan in 1951.



The house in Malemchigāon where Dr. Moore held his first clinic in the Helembu and where the FOA team stayed as overnight guests.

the Gurungs and Magars, live in the areas between 5,000 and 6,000 feet. At 6,000 to 8,000 feet, the Tamangs live in relatively isolated spots and manage to survive by working the soil without extensive irrigation. Above 8,000 feet, in the snowcap area, are the Sherpas and other seminomadic tribes who are experts in trading, in some types of weaving, and in raising *chauris* and a few crops. About 100,000 Sherpas live in the area of Helembu in about 1,000 villages.

Any trip from Kathmandu, the capital of Nepal, to the Helembu district is fraught with difficulties. Some of these can be anticipated. Some are unknown. It took 7 days, in constant rain, for the FOA team with its retinue of 2 interpreter-guides, its cook, and 10 Tamang porters to reach Malemchigāon, the first destination in the hills, on June 12, 1953, after starting at 9 o'clock on the morning of June 6 from Sandarijal on the north rim of the capital valley.

On the FOA team were the chief public health officer and the entomologist of the Foreign Operations Administration Mission in Nepal.

Five days were spent in conducting clinics and health surveys in the two villages. A third proposed clinic and survey, to have included the village of Shermathon, failed to materialize because the team's limited medical supplies were exhausted at Tarke Ghyāng, where the second of the two clinics was held.

The early monsoon rains, leech-covered jungle

trails, high precipices, malarious ravines, jungles infested with bears, leopards, and lions, the 16,799-foot climb to a snow-covered pass, the fear of legendary flowers with poisonous scent (the *Aconitum*) and of reported bandits, the language barrier of the Tibetan-like folk, the prospect of an uncertain reception from the proud and independent villagers—all these, plus the team's relative inexperience in mountain-climbing made the trip an exciting challenge.

The leeches, little segmented worms about 2 inches long, were particularly provoking and troublesome until the team reached an altitude of 14,000 feet. Locating a campsite which would be free from this danger was a time-consuming and delaying assignment at the end of the day's march.

Along the trails on each ridge leading to the pass, leeches would lie in the shade and moisture until nearby footsteps vibrated their sense organs. Then, they would inch from rock to rock, at incredible speed, traveling their entire length in about a second toward the sound, and stopping to perch on a rock with their anterior end waving in the air. Immediately they touched a human body, they would quickly fasten themselves to it and search for warm skin. Often, they would drop from trees. They could penetrate eyelets of shoes and pores of socks by lengthening their entire body. Huge clots of dried blood would be found on the skin where the greedy worms had filled themselves to a fragile bursting point, sometimes producing ecchymosis.

The possibility that flowers with a poisonous scent would menace the medical expedition was first learned about in an account by a group of Scottish climbers. The members of the expedition had heard stories about the flower but had failed to find specimens. A trader in Kathmandu, however, substantiated the legend by offering some type of *Aconitum* as proof. Fearing the scent of the flowers, one of the interpreters carried camphor ice for protection.

At one time, a member of the team was lost for almost an hour at 12,000 feet on the mountain precipice looming high above Malemchigāon. There were snowstorms. There were threats of rockslides.

An especial hazard because of its bulkiness and weight was the 80-lb. drum of DDT which would later be used in the spraying operations in the villages. Often, only one porter could handle the drum on the ledges some 2,000 to 3,000 feet high. One porter refused to continue the climb when the team reached 14,000 feet.

Mlle. Ella Maillart, a Swiss, published another account of this same perilous trail in the *Himalayan Journal* in 1952 under the title "To the Gosainkund." The Gosainkund sacred lakes are the source of the mighty Trisuli River and contain huge boulders under the surface that seem to move like rising spirits when the water ripples. Pilgrims from India often travel to this area to worship.

The Mountain People

The Sherpas are sturdy-looking, long-limbed Mongoloids, not unlike the Tibetans in manner and appearance. They love their mountain freedom. When treated with rebuke or scorn, they respond in kind or with short-tempered violence. But when dealt with kindly, they reciprocate with friendliness. The Sherpas, incidentally, are much sought after by climbing expeditions. Tensing, one of the heroes of the recent Mt. Everest expedition, is a Sherpa. These seminomads are dependable, loyal, strong, and rugged. Although shorter in stature than most Westerners, they are taller than the average Nepalese.

In former times, the Ranas would seek their wives from the Helembu area—the women are beautiful. Their skin is light bronze. Their complexion is excellent. The features are soft but pronounced, and all women have a graceful, lithe figure.

A Nepalese woman from the district dresses in a *cholo* (a cotton blouse with long sleeves), *farrīya* (a cotton skirt reaching from the waist to the ankles), *patuka* (a long sash measuring about 1 yard by 5 yards which is wound around the waist and used for carrying objects), and a *khasto* (a shawl covering the head and shoulder in cold weather).

Rarely does she wear rings or jewelry in her nose, but almost always she has brightly colored beads (*mugakomala*) around her neck. These beads may be of glass, limestone coral,

mother-of-pearl, seeds of trees, or turquoise found in the high rocks.

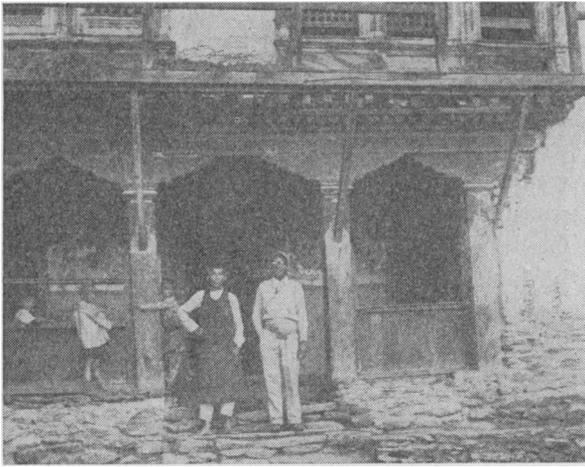
Her hair is usually worn long or braided in pigtailed. If a woman is married or unmarried, she will wear a *dhago*, a red cloth bow at the end of the hair braid, and if she is a widow, a black cloth bow. Absence of the *dhago* or the wearing of a white bow may betray a defamed woman. Women who have visited Kathmandu and are of somewhat better financial status than the typical village woman may sometimes wear saris.

The typical dress of the Nepalese man is the *surwal* (tight-fitting trousers somewhat like jodhpurs), *daura* (a long shirt worn outside the *surwal*), *gaffu* (a hip-length wool felt coat with short sleeves), and *dhoti* (a long sash wound around the waist over the *daura*). A *khukuri* (dagger-like knife) is tucked in his sash. No firearms were observed, either on the person or in the home. The man either goes bareheaded or wears a topee, trapezoidal in shape and made of cloth or withy. Cloth for all garments is usually black cotton brought in from Tibet. The *gaffu* is made from goat-hairs which have been pulled manually from the goat's belly so that the animal can still keep itself warm, too. Both men and women seldom wear shoes. The man usually goes barefoot even in wintertime, but some wear leather boots like the Bhotias farther east.

How the People Live

Malemchigāon is not even a dot on the map. Its 200 men, women, and children live in 25 thick-walled stone houses set on a small plateau extending from a steep mountain of 12,000 feet. The plateau is grass-covered, but the neighboring forest is thick with oak, bamboos, firs, and vines. Wild animals abound in the forest, and the villagers complain most vehemently about the depredations they suffer from nightly raids on their domestic stock and garden crops. Tarke Ghyāng, much more populous than Malemchigāon, has 600 people and 100 houses. It is not difficult to imagine that the hill people are quite warm and cozy when the winter snows come, for firewood is plentiful.

The homes the Sherpas live in resemble Swiss chalets. They are well-built, 2-story stone



The temple at Tarke Ghyāng where the second clinic was held. A monk poses with Dr. G. T. Brooks, the entomologist who accompanied Dr. Moore.

dwellings. On the ground floor, a family's animals may sleep during cold weather. The upper floor, reserved for the family, is designed for comfort.

The rooms are L-shaped with wooden floors and elaborately carved wood walls adorned with shelves and cupboards. On the base of the L is a raised platform built for sleeping. Three open but shuttered windows are directly over the platform. Nearby, a clay pit contains the fire. Above the pit is a crude chimney, not typical of the other small village houses observed in Nepal, which conveys the smoke out of the room. On a porch at the other end of the room an opening has been made to serve as a privy.

At Malemchigāon, the houses are nicely laid out with at least 30 feet between each dwelling. Wheat had been sowed between the buildings and looked a fresh golden brown in June. The cattle were herded on a pasture away from the village, and the children played in the sunshine. Each house was clean and neat.

The houses in Tarke Ghyāng are constructed like those of Malemchigāon but are built so close together that the roofs almost touch, giving the village an appearance of poverty and overcrowding not unlike some of the slum areas in our North American cities. Cows roam the alleys in the mud. Children play in the dung and grime. Unlike the people of Malemchigāon whose hard work and cooperative

struggle for existence were exhibited in their cleanliness and good spirit, the villagers of Tarke Ghyāng showed no real spirit of cooperation and failed to concern themselves with the communal advantages to be gained from good pastures and well-tilled crops.

Each house in the district has an ample stock of brass cooking utensils, glasses, and serving dishes, all neatly arranged and clean-looking on the shelves. Almost all food is cooked thoroughly, but eating is done with hands which are seldom clean.

The Sherpas are pure Buddhist and eat many kinds of meat. The main dietary substances are dairy products since their *chauris* yield large quantities of milk, cheese, butter, and whey. The villagers also produce and consume wheat, potatoes, corn, barley, beans, and eggs. They often go into the nearby forests to gather edible bamboo shoots. Their domestic cattle, the *chauris*, are a hybrid—yak bred with domestic cows. In the United States where the hybrid has been introduced in western areas because of its hardiness, the breed is called cattleyak.

Water is derived from a glacier and from several springs above the villages. In Nepali, "khola" means "river." The stream tumbling down over the rocks, Malemchi Khola, passes close to the villages. It is clear and cold. The Sherpas seldom bathe because of the cold atmosphere in their environment, although steaming jungles are not too far away. Probably not more than one bath a year is taken in water. The Sherpas report, however, that they clean their skins with oil, about once a week.

Sewage Disposal Practices

Sanitary practices following elimination vary in the Helembu district from almost all others in Nepal—and from most all others throughout the Western World. Instead of using a lota filled with water, the Sherpas clean themselves with a stick and stone. Indeed, this method is quite sanitary, and the self-hygiene habits of the Sherpas are much cleaner ones than those of the neighboring Terai people, for example, who are the least sanitary people in Nepal and yet only 50 miles away from the Sherpa tribes. The Tamangs, who are neighboring tribes too

but who live at lower altitudes, vary in this habit.

The Sherpas' fecal deposits are hauled away from the villages and are dumped either in the ravines or in their gardens for use as fertilizer. Like some other Asiatic people, they seem to prefer human to bovine excreta for agricultural uses, although bovine excreta may easily be collected from the droppings of their *chauris*. The practice of using human excreta for fertilizer (nightsoil) is common in other parts of Nepal where cowdung is used for fuel. It was therefore particularly strange to see huge piles of cowdung conveniently heaped alongside the Sherpa villages but going to waste. Some of the manure piles were obviously years old.

Many people in the villages had already heard about and put into use the new practice of making slit trenches which had been introduced earlier at Bodnath in the Nepal Valley. The practice was first demonstrated in Malemchigāon by a highly intelligent youthful leader, Phukten, the son of the Chinia Lama, who himself is educated and well-read.

The Village Leaders

The Chinia Lama is the moral, spiritual, and political leader of most Buddhists in Nepal, and, of course, in the area of Helembu, and, supposedly, in part of Tibet. He can speak 32 languages, including English, Chinese, Burmese, Japanese, and the dialects of Nepal.

The chief lama is the mayor or administrator and political leader as well as the priest and religious leader of the village. He owns most of the land and collects the small amount of taxes which are assessed each year. He does not live the orthodox life of his fellow lamas, who may live either in monasteries or in private dwellings and to whom is delegated the task of religious instruction.

The lamas are most cordial and democratic, mixing with their people and doing heavy work. They are actually one of their people in mind and thought. At Tarke Ghyāng, a Buddhist convent of 40 monks and nuns maintains the spiritual life of the people and assists the chief lama in administering the village's problems. The monks and nuns seem to be a part of the

village and servants of the community. Nuns were seen tending small children and doing menial chores for the villagers.

The definition of lama is not clear. To the people of the Helembu, lamas are either priests or monks. But the Nepalese from Kathmandu, usually one who is a Hindu, thinks of all Tibetans as being lamas; he also thinks that the lamas of the Helembu belong to the same Buddhist sect as the Tibetans. A monk is a lama who has taken the robe and professed his willingness to lead a life of the spirit. Unfortunately, our conception of these terms is obscured by language differences and by unfamiliarity with exotic societies.

Social Customs of the Sherpas

Family life in the Helembu district seemed essentially quite intact. The people are free to make their choice in marriage, usually marrying at 14–16 years of age. The sons are encouraged to make their own homes and their own decisions. If a son is somewhat slow in choosing his wife, the family may take the initiative. Divorce is permitted, and if the wife has children, she usually receives half the property. Divorced women may remarry without social restraint.

Prostitution is not practiced. Promiscuity is actually low, contrary to the popular opinion held in the Nepal Valley. (Perhaps this stigma of promiscuous women in the district stems from legends of earlier times about wives who upon their return to the drab Sherpa villages from the glitter of the Ranas' court revolted against the contrasting austerity.)

There are no schools. Almost all the villagers are illiterate, or nearly so. Only a few understand Nepali, for their own dialect is Tibetan-like. It has no written form. Five percent of the people including the lamas are literate in Tibetan, and one percent are literate in Nepali.

The nearest medical facilities are at the capital, Kathmandu. There is neither a hospital nor a physician in the mountain area. When someone is ill, a *dhami* (drummer) is called in. Occasionally, herbs are used in curing an illness. The dead are cremated.

Setting Up the Clinics

Before holding the clinics in the two villages, the FOA team presented its credentials from the Nepal Government to the son of the China Lama at Malemchigāon. The public health officer set up his one-man clinic for the sick, and the entomologist made a house-to-house canvass, offering DDT dust for lice and DDT residual spray to destroy the insects within the homes he was permitted to enter.

The team intended to put on a grand carnival for the Sherpas—some 600 people and 50 dogs made up the audience—and its two members came well-equipped for the job, despite the ardors of the expedition. They played recordings of the speeches of General Shumsher Jung Bahadur Rana, the Nepalese counselor of education at the time of the health surveys, and Dr. Jit Singh Malla, the director-general of health for Nepal, and showed health filmstrips lent for the purpose by the American Library in Kathmandu. They used a kerosene-operated filmstrip projector.

More than anything else, probably because of the snow scenes with which they could identify themselves, these villagers enjoyed "Winter on the Farm," one of the library's few health filmstrips. The villagers reciprocated with their own gestures of friendship, appreciation, and hospitality—showering their guests with gifts of eggs, butter, cheese, milk, jerked venison, and potatoes; entertaining with festive songs and gay dances; and generously offering *raksi* (rice and barley wine) and Tibetan tea (a combination of butter and tannic acid).

The surveys were completed in about 24 hours in Malemchigāon. The clinic in Tarke Ghyāng was delayed a full day by the funeral of the chief lama's brother, who had died after a 6-day illness, apparently of a simple infection, only the day before. After the funeral ceremony, the clinic, the DDT, the cinema, and the recordings were received with the same friendly enthusiasm exhibited at Malemchigāon.

In Tarke Ghyāng, the clinic was set up in the Buddhist temple, in a room without furniture but whose walls were decorated with delicate murals in the Japanese style depicting the gods' struggle against evil. The medical officer sat on a step opposite his patient who faced him,

seated on a wooden box. Alongside, were placed the drugs and instruments. Sterile technique was necessarily limited. Instruments were sterilized by swabbing with iodine after washing, and needles were kept in Zephiran solution.

Patients were given slips of paper numbered according to how many people the medical officer could see during the clinic which operated between 8 a.m. and 6 p.m. The pace was rapid. Only the most ill were given numbered slips in advance of the session so that the merely curious could be eliminated from the lineup. When injections had to be given, the patient was taken into an adjoining room under the huge brass prayer wheel (12 feet high and 6 feet wide) where at least some privacy existed.

More women than men came for treatment. The women were not at all shy and soon learned that complete examinations were necessary if they were to receive proper diagnosis and medical aid. Few of either sex were older than 50. A man of 45 would exhibit the physique, appearance, and cardiocirculatory system of a North American of 65. The best preserved people examined were the monks and nuns.

In asking patients their symptoms, the medical officer relied on Indra Bir Pande, one of the interpreters who had accompanied the FOA team along the trip up from the capital valley. The other interpreter, Bhuban Raj Tuladhar, accompanied the entomologist from house to house in the dusting and spraying demonstrations. One of these interpreters had been on many European climbing ventures. It was necessary to translate the Tibetan-like dialect into Nepali and then to translate Nepali into English.

Actually, the lamas or the young, beautiful girls who had spent some time in Kathmandu were the ones who translated Tibetan into Nepali. On their return to the district, these girls became community leaders, commanding certain authority as well.

Of necessity, rather stereotyped questions were devised to extract the individual case histories. The chief interpreter kept a written record of the patients examined and of the diagnoses made. The diagnoses were spelled out for him letter by letter, in English. He had

learned the questions by rote. He would ask, "Do you have pain? Point to it. How long have you had it? Do you have fever? When?" In little time, the health officer would have enough information to proceed on his own merits.

There may be some criticism as to the efficiency of diagnosis and treatment, but the original purpose of the surveys was to obtain the basic data for a health program. Each patient was given the best possible treatment under the circumstances. Treatments were necessarily simple and adapted to the patient's comprehension.

Fevers were diagnosed by pulse and palpation. Asthmas and pneumonias were so pronounced that they could often be diagnosed in a minute. A diagnosis for tuberculosis depended on irregular fever, weight loss, rales in the chest, chronic cough over a 6-week period, typical sputum, and severe anemia. Diagnosis for amebic hepatitis was based on chronic dysentery, mucus and blood in the stool, weight loss, abdominal tenderness, and an enlarged tender liver. Intestinal parasites were diagnosed by the description given of the parasite found in the stool.

The Major Health Problems

The most common health problems of the Sherpa villages in order of magnitude are shown in table 1. The work of the clinics and the conditions treated in Malemchigāon and Tarke Ghyāng are shown in tables 2 and 3. Some data on the prevalence of goiter and malaria are shown in table 4.

All diagnoses listed represent the major presenting type of illness. For example, "tuberculosis" in the tables includes both advanced and far-advanced tuberculosis. Trachoma includes chronic trachoma and its sequelae. Massive goiter refers to colloid goiter. Osteoarthritis includes hyperarthritis and senile and traumatic arthritis. Upper respiratory infection refers to common colds. Wounds from *khukuri* slashes are listed separately since there were so many patients with this injury. The bear bite (table 2) was on the scalp; the teeth marks indicated that the man's head actually had been in the jaws of the beast.

In questioning the people about epidemics of disease, there was no suggestion that typhoid occurred in this area. Typhus seemed to be endemic. Two men died from typhus in the winter of 1953. Smallpox and plague are also unknown in this area. Smallpox is rampant in the lower areas of Nepal among the young and old Nepalese. A goddess of smallpox, *Śitalā*, is worshiped in many Hindu temples. Bacillary dysentery, smallpox, and plague could very well become serious diseases in Helembu, but fortunately no carrier had penetrated into this isolated region.

Table 1. Ten principal diseases treated at Malemchigāon and Tarke Ghyāng, Nepal, June 1953

Disease	Number of cases	Percentage
Intestinal parasites ¹	59	33. 7
Respiratory diseases ²	23	13. 1
Arthritis ³	20	11. 4
Eye diseases ⁴	19	10. 9
Venereal diseases ⁵	16	9. 1
Massive goiter.....	14	8. 0
Tuberculosis.....	10	5. 7
Chronic malaria.....	5	2. 8
Peptic ulcer.....	5	2. 8
Bacillary dysentery.....	4	2. 3
Total.....	175	99. 9

Includes: ¹ Amebiasis, ascariasis, and trichuriasis. ² Rheumatic fever, common cold, mumps, poliomyelitis, pneumonia, influenza, bronchiectasis, sinusitis, tonsillitis, and bronchitis, but not tuberculosis. ³ Specific and nonspecific arthritides. ⁴ Acute and chronic eye conditions. ⁵ All venereal diseases and complications.

The cold climate is a further factor retarding the spread of infectious disease to the Sherpa villages. Like the other tribes in the hills, the Sherpas rarely intermingle. Travel to the villages from Kathmandu is a rigorous 5 to 7 days' journey so that many ill persons going to the district from the capital probably succumb along the way.

Intestinal parasites are by far the greatest menace to health in these villages, and the ameba is the most common parasite. Other parasitic diseases are ascariasis and trichuriasis. Cases of these are frequent the year around, and these diseases are most prevalent during the monsoons. As the water was found to be essentially unpolluted, presumably these diseases are foodborne.

The use of nightsoil as fertilizer in addition to the noticeable uncleanliness of the hands—all eating was done with the fingers—and the unsanitary methods of food preparation contribute to the high prevalence of these diseases.

Ascariasis is generally considered a problem of mountainous areas, and this is borne out in Nepal. Crowding, poor sanitation, and lack of medical care promote the spread and intensity of infection. Here again, the family provides the greatest source of spread. The statistics collected in these surveys are based on clinical observations and overwhelming infections, but, if stool specimens had been collected and examined, 90 percent of the population might have been found infected with amebiasis or ascariasis.

Methods of intestinal disease control might well focus on educational measures designed to teach the people food and milk sanitation, cleanliness, and the proper use of fertilizers.

In decreasing order of importance, the insect problems are those of lice, fleas, roaches, and flies. Flies are not prolific, however, because

of the cold climate and the villagers' habit of depositing excreta away from their homes. There were no acute cases of malaria in the villages. The five patients with chronic malaria who were observed in the Malemchigāon clinic had contracted the disease while traveling through the Terai or through the malarious valleys of the hill area. There was no transmission of malaria per se in the Helembu villages.

Although the value of DDT was quite extensively advertised by the FOA team, the people at first did not take to the spraying and dusting operations: They could not associate the insects with their own pain and misery.

At Malemchigāon, occupants of only 8 of the 25 houses requested spraying—none was dusted. Even the lamas showed little interest in DDT. However, as the results of the spraying became known, and as the fame of DDT spread, the picture changed. At the Tarke Ghyāng clinic, 150 people were sprayed with 5-percent DDT, and a few more houses were sprayed there than in Malemchigāon. When the team was prepar-

The Goddess of Smallpox

The people of India appear to have realized at a very early stage of their civilization that faith is an important factor even in relief and immunity from bodily ailments. To them, in the absence of present day medical advances, this was even more important than it is to us today. In parts of India, therefore, legends have grown around deities who are credited with bringing relief to sufferers from certain diseases and images of them are kept in homes and in village shrines. But few take them seriously now. That of the goddess of smallpox is one of the most widespread.

Śitalā, the golden-complexioned, is regarded as the goddess of smallpox. She who sits upon a lotus leaf, all clad in red, with nimba leaves in her hand, is "the cool one." Her name is literally "She who makes cool."

During smallpox epidemics she is besought by anxious mothers. There are also appointed days for her worship, in different seasons, in different parts of the country. On these days one must not eat or drink anything hot, ostensibly, according to Underhill (*The Hindu Religious Year*, Calcutta, 1921),

because she comes and rolls on the hearth and must not get burned. The real significance of this injunction is that no cooking should be done in the house so that no fire may have to be burnt and the house should remain cool and the patient immune from the effects of heat and fumes.

The goddess takes many forms; some say seven. That of Kalī, the black woman, who herself is a form of Durga, the wife of Siva, is one. Durga can take 14 forms.

In much of India, science competes with folklore and sometimes both are put to use simultaneously. Wilkins, in *Hindu Mythology* (Calcutta, 1882), says that although the Hindus are in the habit of inoculating their 2-year-old children in the spring of the year, gifts at the same time are presented to Śitalā and afterwards the flowers given her are placed in the child's hair as a charm. Offerings are made to Śitalā daily for those who have smallpox. If anyone is dangerously ill, he is placed in front of the goddess' image. Beggars go about with a partly gilded stone sacred to her and receive presents from the believers.

ing to leave Tarke Ghyāng, the once-distinterested chief lama requested that the remaining DDT dust be left with him to complete the job.

The Sherpas exhibited an amazing tolerance to the presence of these insects. Those few who ventured a DDT treatment could scarcely realize the miracle of being relieved of this nuisance.

Tuberculosis

Tuberculosis was seen at the clinic at Tarke Ghyāng where it is a definite problem, but there was no evidence of the disease in Malemchigāon. All types of tuberculosis were encountered in the clinic survey, and most cases were in active stages. The rate of advanced tuberculosis at Tarke Ghyāng is perhaps 15 per 1,000 population. Because of the overcrowding and the huddling of the houses in this village, the lack of sunlight and ventilation, a diet lacking in fresh vegetables and fruits, depletion of body reserves through infections and infestations, and the rigors of mountain life, most of these villagers are highly susceptible to tuberculosis. If the village is isolated or remote, contact with the tubercle bacillus is less likely. As an illustration (7), tuberculin skin-testing performed on mountain people at Darjeeling, the mountain station in West Bengal, India, indicated that the majority of the people living at high alti-

tudes were tuberculin-negative, having never been exposed to tuberculosis. If an infected person from outside the snow-cap area were to contaminate the village, however, many, if not most, of the people could quite easily succumb to the disease. BCG vaccine might be indicated in these villages as well as an improvement in living conditions and isolation of sick cases.

Other Diseases

The large number of respiratory diseases observed, particularly those viral in nature, indicates the occasional contact with the outside world and the lack of resistance to infection. The cases of rheumatic fever are not surprising, therefore. Poliomyelitis, influenza, infectious mononucleosis, and viral hepatitis are endemic in the Helembu and elsewhere in Nepal, as has been observed in other clinical surveys. The cold nights and tropical days with great fluctuation in the atmospheric humidity tend to exhaust the respiratory mucosa. A tropical sun at high altitudes with its intense ultraviolet effects must play some part in reducing tissue reserves. In Kathmandu, respiratory infections are prevalent the year around. As many cases occur there in the summer as occur in the winter.

Goiter is prevalent, and people living in vil-

Table 2. 35 various diseases and conditions found among 63 Nepalese patients¹ at the Malemchigāon clinic held June 12, 1953

Conditions	Number of patients	Conditions	Number of patients
Amebiasis	19	Bear bite	1
Peptic ulcer	5	Acute gonorrhoea	1
Osteoarthritis	4	Neurosyphilis	1
Ascariasis	4	Viral epididymitis	1
Trachoma	4	Gonococcal epididymitis	1
Massive goiter	3	Acromial fracture	1
Pelvic inflammatory disease	3	Gluteal wound (from cow-goring)	1
Khukuri (knife) wound	3	Chronic cholecystitis	1
Cataract	3	Fracture of vertebra T-7-8 (trauma)	1
Upper respiratory infection	2	Tuberculosis	1
Headache	2	Inflammatory (? gonococcal) arthritis	1
Anemia	2	Scalp burn	1
Impetigo contagiosa	2	Acne rosacea	1
Rheumatic heart disease	2	Lice	1
Bacillary dysentery	1	Influenza	1
Pneumonia	1	Scar contracture of elbow	1
Hypertension	1	Cuts on foot	1
Cardiovascular syphilis	1		

¹ Approximately equal distribution of sexes. All patients examined according to complaints only.

Table 3. 49 various diseases and conditions found among 105 Nepalese patients¹ at the Tarke Ghyāng clinic held June 14, 1953

Conditions	Number of patients	Conditions	Number of patients
Amebiasis.....	26	Sterility.....	1
Osteoarthritis.....	11	Cirrhosis of liver.....	1
Goiter.....	11	Ovarian tumor.....	1
Trachoma.....	9	Sinusitis.....	1
Ascariasis.....	9	Bronchial asthma.....	1
Chronic malaria.....	5	Thrombophlebitis.....	1
Pneumonia.....	5	Hemiplegia-cerebral vascular accident.....	1
Psychoneurosis.....	5	Lymphoma.....	1
Scrofula.....	3	Rectovaginal fistula.....	1
Tuberculosis.....	3	Bronchiectasis.....	1
Bacillary dysentery.....	3	Gonococcal arthritis.....	1
Cataract.....	3	Pelvic inflammatory disease.....	1
Lice.....	3	Headache.....	1
Rheumatic fever.....	3	Osteomyelitis.....	1
Tubercular adenitis.....	2	Ulnar paralysis.....	1
Typhus (?).....	2	Anemia.....	1
Furunculosis.....	2	Influenza.....	1
Cut foot.....	2	Pediculosis.....	1
Poliomyelitis paralysis.....	2	Arteriosclerotic heart disease.....	1
Vitamin deficiency and malnutrition.....	2	Tertiary syphilis (cutaneous).....	1
Neurosyphilis.....	2	Trichuriasis.....	1
Bronchitis.....	2	Leg sprain.....	1
Mentally defective.....	1	Lupus erythematosus.....	1
Clubfoot.....	1	Acute tonsillitis.....	1

¹ Approximately $\frac{2}{3}$ were women; $\frac{1}{3}$ men. All patients examined according to complaints only.

lages near Malemchigāon and Tarke Ghyāng were reported to be as high as 95-percent infected. Simple control methods, through the use of iodides, such as adding a measured amount of potassium iodide powder to the village salt supply, would effectively control the problem.

Venereal diseases were reported to be fairly common and were evident in the advanced stages. The large number of cases noted at the two clinics represents the accumulation of a period of about 10 to 20 years. There were actually 8 cases of venereal disease at Malemchigāon; 2 cases were found in children who showed corneal cicatrization, which was diagnosed as former ophthalmia neonatorum. At Tarke Ghyāng, eye cases were also included with venereal diseases when the origin seemed clear.

The villagers reported that no one had been ill with venereal diseases, acute gonorrhoea, or genital lesions since 1950, when many people suffered all at once during an epidemic of venereal diseases in both villages. The return of a prodigal daughter to the village at that time may have been the origin for this outbreak.

Serology tests, penicillin, and education would effectively control venereal diseases.

Arthritides in the form of traumatic osteoarthritis were quite common among both the men and women. Most cases were among still fairly young people; most of them were 35 to 50 years of age. The carrying of heavy loads weighing up to 100 pounds, day after day and up rocky trails, is undoubtedly the cause. The trail from Malemchi Khola, up the river, to Tarke Ghyāng was particularly steep and

Table 4. Some data on malaria and goiter prevalence in the villages of Malemchigāon and Tarke Ghyāng, Nepal, June 12, 1953

Surveys	Data
Spleen survey:	
Number of spleens examined ¹	27
Number of positives found with palpable enlargement.....	0
Goiter survey:	
Number of thyroid glands examined ²	43
Number of glands found enlarged.....	³ 23
Percentage of goiter in population.....	53

¹ Examinations made of children, both sexes, under 12. ² Examinations made of men, women, and children over age 12. ³ 26 percent were male; 74 percent female.

rocky, and in places, the angle was more than 60°. Engineered mountain trails, the wearing of shoes, and lighter loads could contribute to improved health in this respect. Also, a little ingenuity could lead to the use of ropeways, wheels, and hydraulic lifts.

It seemed strange to make a tentative diagnosis of peptic ulcer in the district. Worry and frustration, however, need not be associated only with a high civilization—even a porter seems to have his problems of mind and psyche.

Goodwill and Good Health

A public health program in the mountain area would be effective, long-lasting, and economical in view of the simplicity of most of the disease problems encountered. A village development program extended to the Helembu

would find these clever people eager and receptive toward quick progress in the betterment of their environment. Lanes of commerce might well be extended to the mountain areas.

The Sherpas, as an example of the hill tribes, have surpluses of milk, butter, cheese, and whey, which, it is believed, they would willingly exchange for the cloth and salt so scarce in the Helembu. As these people feel that they are more Tibetan than Nepalese, a program of goodwill and help would assure their patronage southward toward the central valley.

REFERENCE

- (1) Bates, L. E., Busk, T., and Palmer, C. E.: Research contributions of BCG vaccination programs. II. Tuberculin sensitivity at different altitudes of residence. *Pub. Health Rep.* 66: 1427-1441 (1951).

Conference on Needs of Migrants

Leaders in health, education, and welfare in 11 States on the eastern seaboard have been invited to attend a conference in Washington, D. C., May 17-19, 1954, to discuss needs of migrant families and their children. Invitations have been issued jointly by the Department of Health, Education, and Welfare through Martha M. Eliot, Chief of the Children's Bureau, Leonard A. Scheele, Surgeon General of the Public Health Service, and S. M. Brownell, Commissioner of Education. The Field Foundation is helping to meet conference expenses.

States which have been asked to send representatives are New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and Alabama. The governors of these States have been asked to support the conference. Also invited are representatives of the Federal Departments of Labor and Agriculture, as well as of national organizations with active programs for migrant families.